

of ten voters opposed the egalitarian position on referenda involving black rights. But surely it makes a difference that in the 1840s the margins were twenty to one against racial justice, whereas between 1865 and 1870 the voters were divided almost evenly on this question. Similarly, she puts racism squarely at the center of Democratic political ideas, as if the mid-nineteenth century consisted only of the years 1854 to 1867. In fact, after 1867 Democrats shifted, to a large extent, from a focus on the Civil War to a concern for other issues, and before the mid-1850s banking and finance, expansionism, and unionism had competed with racism for the Democrats' attention.

Equally serious is Baker's failure to use control groups in her analysis. We are told that personal factors in early life determined partisanship. But we are never told why an individual became a Democrat rather than a Whig. To answer that question, a researcher must look at both Whigs and Democrats to see what experiences propelled them in different directions. She explains Hannibal Hamlin's switch to the Republicans in 1856 in terms of constituency pressure, personal associations with Whigs, and patronage problems. But, unless Baker compares him to New England Democrats who remained loyal to their party, how can one know whether any of those factors were significant? Again, Baker deftly connects northern racism to Democratic racial ideology, but why did that ideology appeal to some northerners—a minority at that—and not to others?

These questions cannot be answered if the most appropriate research technique is rejected. The behavior of three Democrats who became Republicans can suggest a great deal about the tens of thousands who did likewise. So can the early life experiences of seven youngsters who became Democrats. These limited examples can suggest hypotheses, but they cannot prove them. To do that, one must analyze a much larger sample, which requires the use of quantitative analysis. As a consequence, Baker is most persuasive when she describes the functions of political institutions and the content of ideology. She is least persuasive where she describes political behavior and political choice.

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Thomas Alva Edison: An American Myth. By Wyn Wachhorst (Cambridge, Mass., MIT Press, 1983) 328 pp. \$20.00 cloth \$8.95 paper

In a poll taken in 1922 by the *New York Times*, Edison was named the greatest living American. Similarly, in their sociological study of Muncie, Indiana, the Lynds found in 1935 that many people considered Edison to be the third greatest American, outranked only by George Washington and Abraham Lincoln. Edison's popularity in such polls is not surprising given that his inventions—the electric light, the phono-

graph, and the motion picture—have revolutionized daily American life. Yet by the 1980s, most people seem to have forgotten the Wizard of Menlo Park and would probably not include him in a pantheon of American heroes. Americans today are generally not inclined to explain technological change in terms of heroic individuals. Wachhorst's book asks why Edison was once an important cultural hero in America and why he has fallen into obscurity.¹

Rather than pursue these questions in a biographical format, Wachhorst has chosen to chronicle the evolution of the myth surrounding Edison. To establish its salient features, he has analyzed the contents of an extensive number of books, pamphlets, periodicals, newspapers, and book reviews, among other sources. Using this data base, he has tabulated variations in the number of references to different traits and values ascribed to Edison and his inventions. (His findings are summarized in five tables in the appendix.) Although his literary data base is generally sound, Wachhorst could have supplemented it by references from popular scientific magazines and with advertising material from Edison's companies. Publications such as *Scientific American* would have provided more specific information relating the myth to Edison's technical and scientific work, and advertising media might have provided insights into how Edison and his advertising managers employed the myth to sell his products. Even lacking these elements, however, Wachhorst's bibliography is more extensive than that used by any of Edison's previous biographers.

Drawing on this content analysis, Wachhorst examines how the image of Edison gradually shifted in the popular mind from the Wizard of Menlo Park in the 1870s to the "Great American" and even the "Mentor of Civilization" in the 1920s. Central to his analysis is the concept of the cultural hero whose significance arises from his ability to resolve "contradictory cultural values into a single paradoxical reality" (3). Among the contradictions that Edison was thought to have resolved were the machine versus the garden, power versus innocence, production versus consumption, paradise lost versus paradise regained, and (to use Mumford's terms) paleotechnics (steam and mechanical technology) versus neotechnics (chemistry and electronics).²

As he recounts how different stories about Edison can be interpreted as resolutions of these polarities, the author also describes the inventor in terms of Campbell's concept of the monomyth. Campbell identified the monomyth as a spiritual and emotional motif that underlies the myths and archetypal dreams of many different cultures. Frequently structured around a journey in search of self-knowledge, the monomyth uses the adventures and experiences of an individual hero to explain the creation or redemption of society as a whole. In many biographies of

1 Robert S. Lynd and Helen Merrell Lynd, *Middletown in Transition: A Study in Cultural Conflicts* (New York, 1937).

2 Lewis Mumford, *Technics and Civilization* (New York, 1934).

Edison, a remarkable parallel has been drawn between the course of Edison's life-journey and America's transition from an agricultural childhood to an industrial adulthood. The myth portrays Edison as a hero who grew in wisdom and power (that is, in the strength of his inventive skills) over the course of his journey. Eventually, he used his power to save single-handedly the innocent community (America) from evil villains (darkness, ignorance, or the Germans in World War I). Like other monomythic figures, such as the cowboy or Superman, Edison always maintained his paradoxical qualities in the face of adversity: he refused to let power corrupt his innocence and midwestern heritage; he denied all limits, yet remained human; and, although the American community was dependent upon him, he remained aloof, dedicated only to science and truth.³

Because he appeared to bring on a new millenium of material abundance without undermining traditional values, it is little wonder that Americans came to see him in the 1920s as a great hero, even as a technological savior. Yet, because he came to be associated with unbounded optimism and with unlimited technological progress, Wachhorst concludes that Americans eventually abandoned him as a hero when they were forced to confront the limits and dangers of modern technology in the 1950s and 1960s.

Wachhorst has gone far beyond a simple analysis of the literature on Edison to investigate how Americans have coped with rapid technological change. In spite of its conceptual richness, though, this book could be improved in at least two ways. First, although the myth certainly reflected many aspects of American culture, Wachhorst goes too far when he makes the claim that society shaped the myth rather than did Edison himself. Wachhorst admits that Edison "had a capacity to dramatize his career and to generate myths about himself which gained him a great deal of free advertising," but he says little about how Edison's own needs and desires may have informed that myth (44). Instead, Edison comes across as a *tabula rasa* upon which American society could project any value or attitude. Similarly, other groups, such as the electric power industry, have regularly used Edison to promote themselves, and one wonders to what degree their needs and values have influenced the image. Wachhorst briefly mentions several speeches given by utility executives which refer to Edison, but he could have delved much more deeply into the question of how the changing needs of the electrical industry have caused different ideas (such as service, free enterprise, deregulation, or energy conservation) to be incorporated into the legend.

For Wachhorst to have realized that Edison and the power industry may have shaped and used the myth to promote their own goals, he would have needed to know more about the man himself and about the

3 Joseph Campbell, *Hero with a Thousand Faces* (Cleveland, 1956).

history of technology in general. This is the second weakness of the book. Wachhorst is extraordinarily talented in employing the techniques and concepts of American studies, but all that he really knows about Edison is derived from his data base. Although he masterfully helps us to identify the veil of apochrypha surrounding the Wizard, the author occasionally gets tangled in it himself. For instance, he is unaware that most historians of technology now recognize that electric light and power systems developed gradually between 1880 and 1910 through the efforts of numerous inventors and engineers. Wachhorst complains grumpily that Edison's contemporaries were slow to give him all of the credit due him (91). In addition, he makes various authoritative remarks about Edison's personal history which are frequently unsupported by references. Perhaps the most glaring example is his claim that by 1889 Edison was one of the richest men in America (90). Nothing in the existing Edison scholarship even vaguely suggests that his wealth approached that of contemporaries such as John Pierpont Morgan or William H. Vanderbilt. The lack of documentation is mildly annoying; if Wachhorst had been more careful in these matters, he could have drawn sharper contrasts between the man and the myth. Although the Edison Archives in West Orange, New Jersey, are voluminous, the author could have enhanced his picture of Edison by using manuscript materials selectively.⁴

Even with these weaknesses, however, Wachhorst has written an insightful and provocative essay about how Americans have used myths to cope with rapid technological change. His study is the first of its kind, and it should stimulate other scholars to investigate further the relationship between culture and the public images of scientists and inventors.⁵

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4 For more detailed information on the rise of the power industry, see Harold Passer, *The Electrical Manufacturers, 1875-1900: A Study in Competition, Entrepreneurship, Technical Change, and Economic Growth* (Cambridge, Mass., 1953); Thomas P. Hughes, *Networks of Power: Electrification in Western Society* (Baltimore, 1983). As examples of recent historical scholarship on Edison, see Carlson, "Edison in the Mountains: the Magnetic Ore Separation Venture, 1879-1900," *History of Technology*, VIII (1983), 37-59; David A. Hounshell, "Edison and the Pure Science Ideal in Nineteenth-Century America," *Science*, CCVIII (1980), 613-618; Hughes, "Edison's Method," in William B. Pickett (ed.), *Technology at the Turning Point* (San Francisco, 1977), 5-22; Richard H. Schallenberg, "The Alkaline Storage Battery: A Case History of the Edison Method," *Synthesis*, I (1972), 1-13.

5 Wachhorst has already inspired at least one attempt to analyze the public image of another scientist. In his dissertation on Steinmetz, Ronald R. Kline devotes one chapter to the public response of this engineer's famous artificial lightning experiments of the 1920s. See his "Charles P. Steinmetz and the Development of Electrical Engineering Science," unpubl. Ph.D. diss. (Univ. of Wisconsin, Madison, 1983).